Work Safety Risk Assessment at Container Load Unloading Jobs at PT. Pelabuhan Indonesia II (Persero) Palembang Branch 2017

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Abstract

Loading and unloading of container goods is carried out using cranes and truck containers as a means of transportation besides facilitating activities, which can also lead to the risk of workplace accidents. In 2014 there was a work accident in Kuningan Jakarta, workers were crushed by a container during the loading and unloading process. Container loading and unloading is a routine activity carried out at PT. Pelabuhan Indonesia II (Persero) Palembang Branch. This activity involves tools that can cause accidents such as being hit by a container and hit by a truck head, therefore a risk assessment is carried out on container loading and unloading work. The purpose of this study was to analyze occupational safety risk assessments on container loading and unloading work. This study uses a qualitative research design, using Job Safety Analysis (JSA) for the risk identification process, the US / NZ 4360: 1999 semi-quantitative risk assessment table for risk analysis and semi-quantitative risk level Cross (1988) for risk evaluation. The results of the study indicate that container loading and unloading work consists of the preparation stage, the operation phase of the QCC and the stage of moving containers. The risks identified based on the stage of work are overtaken by containers, falling from heights, collisions between head trucks, falling lifts, hit by a lock lock, getting hit by a truck head, falling into the river, collisions between QCCs and electric shock. The hazards included in the acceptable risk category include being crushed by repair equipment, hands pinched, tripping, slipping lubricants and head banging. The suggestion of this research is that all activities in the field should be carried out in accordance with the applicable regulations and supervision should be carried out more specifically in the use of PPE and conduct periodic health checks on workers.

***Keywords**: Risk Assessment, Container Loading and Unloading, Job Safety Analysis.*

Introduction

Occupational Health and Safety (K3) is a compulsory program that exists in every workplace. Its implementation has spread widely in almost every industry sector, its main goal is to reduce the number of accidents, and reduce the risk of being dangerous[1].

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The number of occupational accidents in the world is in quite alarming conditions, every year two million people die and 270 million people are injured due to workplace accidents that occur throughout the world[2]. The development of workplace accidents in developing countries is also very high, including Indonesia, this is because developing countries have many labor-intensive industries, so that more workers are exposed to potential hazards[3].

Workplace accidents are unwanted events that have an impact on someone or material damage, which are the result of contact with kinetic, electrical, chemical, heat and other sources[4]. Most (85%) accidents are caused by human factors with unsafe actions. Unsafe action is an action that can endanger the workers themselves

and others who can cause accidents that can be caused by various things such as not using PPE, not following work procedures, not following work safety regulations and not working carefully , where out of every 300 unsafe actions, there will be 1 (one) accident resulting in the loss of workdays[5].

The port is one of the workplaces that has a high risk of work accidents. Every year accidents caused by lifting at the port occur. Based on the statistics of the Marine Industrial Accident, the Hong Kong Maritime Department in 2016 had occurred as many as 76 cases of

workplace accidents in the loading and unloading section port. The work accident consisted of 60 minor accident cases, 15 serious accident cases and 1 fatal accident case[6].

One of the work accident incidents that occurred during loading and unloading was the breaking of the RTG wayer trolly while carrying out container loading and unloading from the ship which caused the death of the RTG operator assistant on October 21 20177. In addition, in the past two years there has been a work accident at JICT Jakarta is related to loading and unloading containers such as damage to spreader tools and falling over on maintenance and container cars which have deteriorated during the appointment process[8].

Goods container loading and unloading activities at the port have a high risk. Based on accident data obtained from the Maritime Department of Hong Kong, the incidence of accidents related to cargo handling / loading and unloading in Hong Kong is quite high. In 2006 there were 302 work accident cases related to container loading and unloading. In 2007 there were 240 work accident cases related to container loading and unloading. In the following year, from 2008 to 2010 each recorded 220 cases, 176 cases and 157 cases each year. The incidence of these accidents is seen to decline every year, but the decline is not accompanied by a decrease in the risk of death which reached its peak in 2010 as many as 6 deaths due to workplace accidents related to container loading and unloading[9].

The 24-hour bongkarmuat service that involved humans and machines definitely caused the danger of accidents such as dropping slings at the time of appointment, spreaders falling on head truck operators, falling containers on TKBM or head truck operators, containers falling into the sea until the QCC collapsed due to wind or cargo the excess.

Risk assessment is the process of evaluating risks caused by danger, and determining whether the risk is acceptable or not. JSA is a procedure that functions to help integrate the principles and practices of safety and health for certain work operations or tasks.

Container loading and unloading services at PT. Pelabuhan Indonesia II (Persero) Palembang Branch is conducted 24 hours and based on observations there are dangerous jobs which can risk causing work accidents. Container loading and unloading activities themselves have considerable potential hazards and risks, such as TKBM falling from a height, dropping slings at the time of appointment, collisions between containers, falling containers on TKBM or head truck operators, TKBM falling into the river until collisions between QCC. Risk assessment is deemed necessary to minimize the incidence of accidents.

Material and Method

This study uses a qualitative research design, using Job Safety Analysis (JSA) for the risk identification process, the US / NZ 4360: 1999 semi-quantitative risk assessment table for risk analysis and semi-quantitative risk level Cross (1988) for risk evaluation.

The population in this study were procedures / jobs in container loading and unloading activities carried out at PT. Pelabuhan Indonesia II (Persero) Palembang Branch.

Primary data in this study is in the form of data from field observations, as well as data from interviews with key informants and informants. Observation data is used to identify risks and get a description of the dangers in loading and unloading work at PT. Pelabuhan Indonesia II (Persero) Palembang Branch.

Secondary data in this study were in the form of library research, company profile, work instructions for planning container loading and unloading activities, work instructions for controlling loading and unloading activities, container service procedures for loading and unloading of PT. Pelabuhan Indonesia II (Persero) Palembang Branch and review of documents related to research.

Data obtained from the results of observations and interviews were analyzed using semi-quantitative risk analysis techniques to determine the level of risk and evaluated at each step of the work and involved workers

in carrying out the assessment. In addition, data analysis based on observations is also done by confirming the observations in the form of photos of work procedures, known as photovoice. Furthermore, the data will be validated using triangulation of sources, methods, and data to test the credibility of the research results.

Discussion

The results of the research conducted during the container loading and unloading work at PT. Pelabuhan Indonesia II (Persero) Palembang Branch shows that there are 12 risks with very high risk levels. These risks are grouped into 4 types of risks, namely being crushed by the container, collision between the head of the truck, falling from a height, and the elevator falling.

The risk of overwritten containers is in several work steps. Work steps that have the risk of being hit by containers include, among others, lasing or unlasing containers, opening a twist lock on containers, head truck operators waiting for cargo, giving signals to TKBM and recording container numbers done by tally. In a day this work is usually done once so that the exposure value is given 6 (Frequently).

Another risk that has a very high level is the risk of being hit by a head truck when the head truck operator waits for the load of goods, the operator should not be allowed to get off the vehicle, but the operator comes down from the head truck and runs on the truck track. This can lead to the risk of an accident being hit by a vehicle that will exit or go to the QCC in front of it to load containers, therefore a 6 probability value. Consequences of 25 (very serious) because if the head truck operator is hit then it can cause injury and even permanent disability and exposure 3 (occasionally). The risk of getting hit by a truck head is not only for the operator. The risk of being hit by a truck head can also occur at the stage of signal loading and unloading by the TKBM to the head truck operator and at the stage of recording the container number by tally. The probability value 6 (Likely) is because the TKBM and tally are right next to the head of the truck and stand in the truck path when giving sinya and recording containers, this can cause TKBM and tally to be hit by trucks that will pass, moreover the activities are carried out at night. What consequences if TKBM or tally gets hit is the value is 25 (very serious) because it can cause injury to permanent disability. The expiration value is 3 (Occasionally) because if the sprider is lifting the container on the TKBM ship and tally will move to the safe lane provided.

Collisions between head trucks can occur when the activity of the head truck operator takes the truck to the truck or carries a load to the stacking field, the reason is that the head truck operator is not vigilant when driving a vehicle so that it strikes a vehicle in front of it and this is likely to occur because every cargo the container earns 2000 rupiah so the head truck operator ignores safety, the probability value is 6 (likely). The consequence is 15 (serious) because if there is a risk accident the occurrence can occur is a serious injury such as a broken bone, this activity takes place several times because after the head truck brings the container from the dock to the stacking field it will return to the dock so that the exposure value is 6 (frequently).

The next risk is included in the very high category, which is falling from a height. falling from a height can cause mild to severe injuries such as fractures and even death of workers. This risk can occur at TKBM which opens a twist lock on a stack of containers that reaches 12 M. The twist lock is a prism-shaped locking iron located in four container corners, so that the container stack does not sway or move position. To open a twist lock on a container that is in the topmost stack TKBM must go up above the container and be on the edge of the container. Based on the results of interviews with workers, there has been a work accident because the TKBM is in an unhealthy condition and loses balance which causes the TKBM to fall from a height so that the possible value is 10 (continuous) severity that can occur if the TKBM falls permanently so the consequence value is 25 (Very serious). The exposures value is 6 (frequenly) because this activity is done repeatedly. The same results were obtained from the study of Makomulamin and Safitri (2017), which stated that the danger of falling from a height occupies a high risk level with a score of 15, the possibility of occasional occurrence and severity is severe injury, broken bones, disability and death which means necessary carried out promptly by the company.

Conclusion

The results of risk identification in container loading and unloading work at PT. Pelabuhan Indonesia II (Persero) Palembang Branch has 36 risks. Preparation stage: hit by ahead truck, crushed repair equipment, hand pinched, fell into a river, tripped, hit a twist lock throw, slipped lubricant, hit the head, crushed the container, fell from a height and collided between the head truck.

QCC operation: tripping, the elevator falls, hands pinched on the elevator door, tripping, head banging, hands pinched swift limit, head hit, collision between QCC and electric shock. The stage of moving containers: getting hit by a head truck, being hit by containers, tripping, slipping and traffic accidents.

`The results of the risk analysis obtained illustrate that in container loading and unloadingjobs there are 12 risks with very high risk levels which are grouped into the risk of being hit by containers, falling from a height, collisions between head trucks and lifts falling. 1 risk with the risk level of priority 1, namely the supervisor is exposed to a twist lock throw, 2 risks with a substantial level of risk, 5 risks with a level of risk of priority 3 are risk of hit head, collision between QCC, pinched hands and electric shock, and 16 risks with acceptable risk levels that is overwritten by repair equipment, tripping, slipping lubricant head hit and pinched hands.

The results of the risk level obtained are divided into 5, namely very high, priority 1, substantial, priority 3 and acceptable.

The results of the risk evaluation indicate that there are still dangers included in the category of risk level (existing level) non-acceptable or still need improvement in the implementation of work and improvement in the implementation of risk control. Besides that, it is also found that hazards including acceptable level levels or risk control efforts that have been carried out are considered to have reduced the level of risk to acceptable limits, although the intensity of activities that pose a fixed risk should be reduced to a minimum. These hazards include pinched hands, slippery areas of the ship due to oil spills or lubricants, Laying a twist lock that is careless on the road, Laying mechanical equipment carelessly so that it falls from above the head.

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Ethical Clearance: The study was approved by the institutional Ethical Board of the Public Health, Airlangga University.

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